

The Number Of Possible Positions Of An
 $N \times N \times N$ Rubik Cube

$$\frac{88179840 (12N - 24\lfloor \frac{N}{2} \rfloor)! 1024^{N-2\lfloor \frac{N}{2} \rfloor} (620448401733239439360000)^{\lfloor \frac{N-2}{2} \rfloor} (1 + \lceil \frac{N-2}{2} \rceil)}{24^{6\lfloor \frac{N-2}{2} \rfloor \lceil \frac{N-2}{2} \rceil} (24 + 46\lfloor \frac{N}{2} \rfloor - 23N)}$$